CLAIMS

1. A polymer-supported Lewis acid catalyst comprising a Lewis acid group expressed by the following general formula (I):

$$MX_n \qquad (I)$$

(wherein M represents a polyvalent element, X represents an anionic group, and n is an integer representing the valence of M) linked and supported on a polymer film via a SO_3 or SO_4 group.

2. The polymer-supported Lewis acid catalyst according to claim 1, comprising the Lewis acid group expressed by the following general formula (II):

$$-R^{\circ}-MX_n \qquad (II)$$

(wherein M represents a polyvalent metallic element, X represents an anionic group, n is an integer representing the valence of M, and R° represents a SO_3 or SO_4 group) linked and supported on a polymeric chain via a spacer chain.

3. The polymer-supported Lewis acid catalyst according to claim 2, wherein the spacer chain is a hydrocarbon group.

4. The polymer-supported Lewis acid catalyst according to claim 3, wherein the spacer chain is expressed by the following general formula (III):

$$[(CH_2)_mPh]_l \qquad (III)$$

(wherein Ph represents a phenyl group, and m and l each represent

an integer greater than or equal to 1.)

5. The polymer-supported Lewis acid catalyst according to any one of claims 1 to 4, wherein the polymeric chain comprises a polymer obtained by the addition polymerization of aromatic monomers.

6. The polymer-supported Lewis acid catalyst according to any one of claims 1 to 5, wherein the polyvalent element (M) is a lanthanoid element.

7. A method of organic synthesis using the polymer-supported Lewis acid catalyst according to any one of claims 1 to 6, wherein the reaction is performed in water or an aqueous medium.

8. The method of organic synthesis according to claim 7, which comprises the formation of a carbon-carbon bond.